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Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

Sub-Committee of Experts on the Transport of Dangerous Goods

Forty-fifth session
Geneva, 23 June – 2 July 2014
Item 4 (c) of the provisional agenda
Listing, classification and packing: miscellaneous

UN 3170 Aluminium smelting by-products or aluminium remelting by-products

Transmitted by the experts from Spain and Norway[1]

Summary

Executive summary: The aim of this proposal is to ensure safety in the transport of UN 3170 ALUMINIUM SMELTING BY-PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS

Related documents: ECE/TRANS/WP.15/AC.1/2012/28 (United Kingdom)
INF.4 and INF.5 Joint Meeting in September 2012 (UK)
ECE/TRANS/WP.15/AC.1/2012/128, para. 34-40
INF.22 Joint Meeting in March 2013 (Norway)
ECE/TRANS/WP.15/AC.1/2012/130, para. 34-35
Report ST/SG/AC.10/C.3/88, para. 16-19
INF.45 (Norway and Spain) TDG 44th session
ECE/TRANS/WP.15/AC.1/2014/21 (Spain and Norway)
ECE/TRANS/WP.15/AC.1/2014/INF.49 (Spain and Norway)

[1] In accordance with the programme of work of the Sub-Committee for 2013-2014 approved by the Committee at its sixth session (refer to ST/SG/AC.10/C.3/84, para. 86 and ST/SG/AC.10/40, para. 14).

Introduction

1. In the forty-fourth session, Norway and Spain pointed out a disagreement in the Model Regulations regarding the containment provisions for UN 3170 ALUMINIUM SMELTING BY-PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS. The Sub-Committee noted that the assignment of code BK1 (bulk transport in sheeted bulk containers permitted) to UN No. 3170 is inconsistent with subsection 4.3.2.2, which does not permit bulk transport of Class 4.3 goods in sheeted containers.

2. Cooling before transportation and ventilation of these particular class 4.3 by-products were highlighted as precautionary measures, and possible solutions were discussed to include these as new provisions into the Model Regulations.

3. The Sub-Committee in the report ST/SG/AC.10/C.3/88, Paras 16–18, retained the following points on this subject:

> *"The Sub-Committee noted that the assignment of code BK1 (bulk transport in sheeted bulk containers permitted) to UN No. 3170 is inconsistent with subsection 4.3.2.2, which does not permit bulk transport of Class 4.3 goods in sheeted containers.*
>
> *Several experts pointed out that only code BK2 is assigned in the IMDG Code and considered that it would not be appropriate to authorize maritime transport of dangerous goods in BK1 containers that react with water, notably owing to the risk of pockets of hydrogen forming in ships' holds.*
>
> *Some experts pointed out, however, that for inland transport, such goods had been transported in sheeted bulk containers for many years without mishap and in light of that experience requested an exception to be made, at least for inland transport."*

4. Thus, according to the discussion in the last session, there seems to be a general acceptance for the continued use of sheeted bulk containers in land transport. The Joint Meeting (RID/ADR/ADN) in March this year adopted provisions to maintain transport of UN 3170 in sheeted or closed vehicles and containers.

5. Therefore it is proposed to amend the Model Regulations to address the disagreement mentioned above, and at the same time add new requirements to enhance the safety level during transportation of UN 3170 ALUMINIUM SMELTING BY-PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS by requiring cooling before transportation and ventilation during the transport.

Proposals

6. Amend Special Provision 244 in Chapter 3.3 (new text underlined):

This entry includes e.g. aluminium dross, aluminium skimmings, spent cathodes, spent potliner, and aluminium salt slags.

<u>Before transport these by-products shall be cooled to ambient temperature prior to loading. All transport containments shall ensure that the bulk load is ventilated and protected against ingress of water throughout the journey. The cargo doors of closed vehicles and closed containers shall be marked with the following text:</u>

WARNING

CLOSED MEANS OF CONTAINMENT

OPEN WITH CAUTION

The letters in the text shall be not less than 25 mm high, and in a language considered appropriate by the consignor.

Notwithstanding the provisions of 4.3.2.2, sheeted bulk containers (BK1) may be used for inland transport.

7. Delete from the dangerous goods list for UN 3170 in column 10 "BK1".

Justification

8. UN 3170 has been transported in sheeted containers safely and without incidents by the land transport modes until now, and it should therefore be retained as a possibility for safe carriage of aluminium smelting by-products.

9. In contact with water aluminium smelting by-products emit flammable gases such as hydrogen and methane. In these by-products some water will be present in due to pot removal procedures and the moisture-absorbing nature of the chemicals. Thus, prior to transport water is already present in these by-products in contrast to other class 4.3 goods. Ventilation is therefore the only effective preventive measure to avoid accumulation of gases up to hazardous levels. Carrying UN 3170 in sheeted containers provides sufficient ventilation to the cargo; if carried in closed containers, sufficient ventilation has to be provided by vents.

10. Even if vehicles and containers are ventilated, it is still possible that a certain amount of gas is contained inside, and it would therefore be prudent to introduce a warning label requirement to ensure that the necessary measures of protection are taken.

11. When the by-products are hot, oxidation reactions occur at a higher rate, and the generated gases are also more likely to ignite. This especially applies for skimmings (dross). Cooling the by-products before transport ensures less gas generation, and therefore less risk.